**3GPP TSG-CT WG1 Meeting #14XXC1-23XXXX**

**XXX XX 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **23.122** | **CR** | **1085** | **rev** | **2** | **Current version:** | **18.2.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:***  | Clarification on IOT RATs without configured SENSE threshold and Non-IOT RATs |
|  |  |
| ***Source to WG:*** | MediaTek Inc. |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | SENSE |  | ***Date:*** | 2023-04-19 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-18 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | 1. IOT RATs without configured SENSE threshold

Per CT6 TS 31.102 CR 0978, it is possible that some of the **NB-IoT**, **GERAN EC-GSM-IoT** and **Category M1 or M2 of E-UTRA** RATs **does not** have corresponding entry in the EFOCST ("Operator controlled signal threshold per access technology"), i.e., there is no threshold for these IOT RATs. UE behavior for these RATs when the UE "applies SENSE" (i.e., the first run of the PLMN selection) needs to be defined.(2) Non-IOT RATsAccording to clause 3.X *"Signal level enhanced network selection applies* ***only*** *to* ***NB-IoT****,* ***GERAN EC-GSM-IoT*** *and* ***Category M1 or M2 of E-UTRA****"*, it is possible that a UE supports SENSE also supports other RATs (e.g., NR), UE behavior for Non-IOT RATs when the UE "applies SENSE" (i.e., the first run of the PLMN selection) needs to be defined |
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| ***Summary of change:*** | When a PLMN’s available RAT is (1) IOT RATs without configured SENSE threshold, or (2) Non-IOT RATs, the UE **treats** the threshold value as effectively **infinitely small (e.g., zero, or cell suitability/selection criteria)**, i.e., any weakest detectable signal strength will be >= the threshold. |
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| ***Consequences if not approved:*** | When a PLMN’s available RAT is (1) IOT RATs without configured SENSE threshold, or (2) Non-IOT RATs, the UE cannot determine whether a detected signal strength is it is “>=” or “<” threshold. |
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| ***Clauses affected:*** | 3.11 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*change\*\*\*

## 3.11 Signal level enhanced network selection

Signal level enhanced network selection applies only to NB-IoT, GERAN EC-GSM-IoT and Category M1 or M2 of E-UTRA. An MS supporting any, or a combination, of NB-IoT, GERAN EC-GSM-IoT and Category M1 or M2 of E-UTRA shall apply signal level enhanced network selection if the following conditions are fulfilled:

1) The MS is in automatic PLMN selection mode;

2) The MS supports the "Operator controlled signal threshold per access technology" as specified in 3GPP TS 22.011 [19];

3) The MS is configured for using signal level enhanced network selection as specified in 3GPP TS 24.368 [50]; and

4) The "Operator controlled signal threshold per access technology" is configured in the USIM.

NOTE 1: The usage of the "Operator controlled signal threshold per access technology" is intended only for IoT stationary devices (see 3GPP TS 22.011 [19]).

NOTE 2: "Operator controlled signal threshold per access technology" is not expected to be supported by non-IoT devices.

The MS can be configured with an "Operator controlled signal threshold per access technology" stored in the USIM (see 3GPP TS 31.102 [40]) consisting of one or more entries, each containing:

a) a home operator controlled signal threshold; and

b) an access technology.

The MS shall consider the received signal quality from a candidate PLMN/access technology combination is equal to or greater than the "Operator controlled signal threshold per access technology" of the access technology configured in the USIM if:

1) the access technology is not an access technology for which the signal level enhanced network selection applies; or

2) there is no entry for the access technology stored in the "Operator controlled signal threshold per access technology" in the USIM;

The "Operator controlled signal threshold per access technology" is specific for a certain access technology and when applicable, applies to all allowable PLMNs with the corresponding access technology combination.

Editor's note (WI SENSE, CR 0952): It is FFS whether HPLMN can use CP-SOR procedure to update the signal level enhanced network selection in the USIM.

\*\*\*end of change\*\*\*